INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live.

Frank O'Bannon
Governor

Lori F. Kaplan
Commissioner

100 North Senate Avenue
P. O. Box 6015
Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.IN.gov/idem

July 29, 2003

TO: Interested Parties / Applicant

RE: TriMas Fasteners, Inc. 023-16752-00029

FROM: Paul Dubenetzky
Chief, Permits Branch
Office of Air Quality

Notice of Decision: Registration

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 4-21.5-3-4 (d) this order is effective when it is served. When served by U.S. mail, the order is effective three (3) calendar days from the mailing of this notice pursuant to IC 4-21.5-3-2(e).

If you wish to challenge this decision, IC 4-21.5-3-7 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, ISTA Building, 150 W. Market Street, Suite 618, Indianapolis, IN 46204, **within (18) eighteen days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

(1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
(2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
(3) the date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

(1) the name and address of the person making the request;
(b) the interest of the person making the request;
(c) identification of any persons represented by the person making the request;
(4) the reasons, with particularity, for the request;
(5) the issues, with particularity, proposed for consideration at any hearing; and
(6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosure

REGIS.wpd 8/21/02

July 29, 2003

Mr. Don Gulas
TriMas Fasteners, Inc.
3281 West County Road O NS
Frankfort, Indiana 46401

Re: Registered Construction and Operation Status,
023-16752-00029

Dear Mr. Gulas:

The application from TriMas Fasteners, Inc., received on January 31, 2003, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.5), it has been determined that the following steel screws and bolts manufacturing plant, located at 3281 West County Road O NS, Frankfort, Indiana 46401, is classified as registered:

New Emission Units and Pollution Control Equipment

(a) One (1) new Zinc Chromate Line with a maximum capacity of 4,000 pounds of steel screws/bolts per hour, controlled by a Packed Bed Fume Scrubber:

(1) One (1) natural gas-fired boiler, identified as Boiler 2, with a maximum heat input capacity of 2.65 million British thermal units per hour (mmBtu/hr); and

(2) One (1) Embrittlement Oven with a total heat input of 4.0 mmBtu/hr; Zone 1 - Dry off operation at 1.2 mmBtu/hr, Zone 2 - Preheat operation at 1.2 mmBtu/hr, and Zone 3 - Soak operation at 1.6 mmBtu/hr.

(b) One (1) new Furnace Line Y with a maximum capacity of 1,500 pounds of steel screws/bolts per hour:

(1) One (1) natural gas-fired Hardening Furnace (Heat Treat), identified as PR Y with a maximum heat input capacity of 1.554 mmBtu/hr;

(2) One(1) natural gas-fired Endothermic Gas Generator, identified as EN Y with a maximum heat input capacity of 0.25 mmBtu/hr;

(3) One (1) natural gas-fired Pre-Washer and Dryer, identified as PR Y with a maximum heat input capacity of 0.5 mmBtu/hr;

(4) One (1) natural gas-fired Post- Washer and Tempering Furnace, identified as PR/TEMP Y with a maximum heat input capacity of 1.5 mmBtu/hr; and

(5) One (1) Quench Tank, identified as QT-Y containing mineral quench oils, controlled by an Electrostatic Precipitator with gas flow rate of 3,800 actual cubic feet per minute (acfm) and an outlet grain loading of 0.0015 grains per dry standard cubic foot (gr/dscf).

Permitted Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units and pollution control devices:

(a) One (1) Zinc Phosphate Line with a maximum capacity of 15,000 pounds of steel screw/bolts per hour, controlled by a Packed Bed Scrubber:

(1) One (1) natural gas-fired boiler, identified as Boiler 1 with a maximum heat input capacity of 2.65 mmBtu/hr. This boiler was installed in 1997.

(b) One (1) Furnace Line 1 with a maximum capacity of 4,000 pounds of steel screws/bolts per hour:

(1) One (1) natural gas-fired Hardening Furnace (Heat Treat), identified as HT 1 with a maximum heat input capacity of 3.75 mmBtu/hr;

(2) One(1) natural gas-fired Endothermic Gas Generator, identified as EN 1 with a maximum heat input capacity of 1.55 mmBtu/hr;

(3) One (1) natural gas-fired Pre-Washer and Dryer, identified as PR 1 with a maximum heat input capacity of 1.3 mmBtu/hr;

(4) One (1) natural gas-fired Tempering Furnace, identified as TF 1 with a maximum heat input capacity of 2.6 mmBtu/hr;

(5) One (1) natural gas-fired Post-Washer and Dryer, identified as PS 1 with a maximum heat input capacity of 0.8 mmBtu/hr; and

(6) One (1) Quench Tank, identified as QT-1 containing mineral quench oils, controlled by an Electrostatic Precipitator with gas flow rate of 3,800 actual cubic feet per minute (acfm) and an outlet grain loading of 0.0015 grains per dry standard cubic foot (gr/dscf).

(c) One (1) Furnace Line 2 with a maximum capacity of 4,000 pounds of steel screws/bolts per hour:

(1) One (1) natural gas-fired Hardening Furnace (Heat Treat), identified as HT 2 with a maximum heat input capacity of 3.75 mmBtu/hr;

(2) One(1) natural gas-fired Endothermic Gas Generator, identified as EN 2 with a maximum heat input capacity of 1.55 mmBtu/hr;

(3) One (1) natural gas-fired Pre-Washer and Dryer, identified as PR 2 with a maximum heat input capacity of 1.3 mmBtu/hr;

(4) One (1) natural gas-fired Tempering Furnace, identified as TF 2 with a maximum heat input capacity of 2.6 mmBtu/hr;

(5) One (1) natural gas-fired Post-Washer and Dryer, identified as PS 2 with a maximum heat input capacity of 0.8 mmBtu/hr; and

(6) One (1) Quench Tank, identified as QT-2 containing mineral quench oils, controlled by an Electrostatic Precipitator with gas flow rate of 3,800 actual cubic feet per minute (acfm) and an outlet grain loading of 0.0015 grains per dry standard cubic foot (gr/dscf).

(d) One (1) Furnace Line 3 with a maximum capacity of 4,000 pounds of steel screws/bolts per hour:

(1) One (1) natural gas-fired Hardening Furnace (Heat Treat), identified as PR3 with a maximum heat input capacity of 6.8 mmBtu/hr;

(2) One(1) natural gas-fired Endothermic Gas Generator, identified as EN 3 with a maximum heat input capacity of 0.6 mmBtu/hr;

(3) One (1) natural gas-fired Pre-Washer and Dryer, identified as PR 3 with a maximum heat input capacity of 0.75 mmBtu/hr;

(4) One (1) natural gas-fired Post-Washer and Tempering Furnace, identified as PR/TEMP 3 with a maximum heat input capacity of 3.4 mmBtu/hr; and

(5) One (1) Quench Tank, identified as QT-3 containing mineral quench oils, controlled by an Electrostatic Precipitator with gas flow rate of 3,800 actual cubic feet per minute (acfm) and an outlet grain loading of 0.0015 grains per dry standard cubic foot (gr/dscf).

The following conditions shall be applicable:

(a) Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following:

(1) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuos opacity monitor in a six (6) hour period.

(b) Pursuant to 326 IAC 6-3-2, the Particulate emissions from the following equipment shall be limited using the following equation:

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where: E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

Facility	Process Weight Rate (tons/hour)	Particulate Emissions Limit (pounds/hour)
Quench Oil Process Tank, QT-Y	0.75	3.38
Quench Oil Process Tank, QT-1	2.0	6.5
Quench Oil Process Tank, QT-2	2.0	6.5

Quench Oil Process Tank, QT-3	2.0	6.5

(c) Pursuant to 326 IAC 6-2-4 (Indirect Heating Units), the PM emissions from the existing Boiler 1 and proposed Boiler 2 shall each be limited to 0.6 pound per million Btu or an equivalent of 1.59 pound of PM per hour for each boiler.

(d) Pursuant to 326 IAC 8-3-2 (Cold Cleaner Operations), for cold cleaning operations (proposed degreaser, identified as PR Y, and existing degreasers, identified as PR 1, PR 2, and PR 3) constructed after January 1, 1980, the owner or operator shall:

(1) Equip the cleaner with a cover;

(2) Equip the cleaner with a facility for draining cleaned parts;

(3) Close the degreaser cover whenever parts are not being handled in the cleaner;

(4) Drain cleaned parts for at least fifteen (15) seconds or until dripping ceases;

(5) Provide a permanent, conspicuous label summarizing the operation requirements;

(6) Store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, in such a manner that greater than twenty percent (20%) of the waste solvent (by weight) can evaporate into the atmosphere.

(e) Pursuant to 326 IAC 8-3-5(a) (Cold Cleaner Degreaser Operation and Control), the owner or operator of the cold cleaner degreasers without remote solvent reservoirs (proposed degreaser, identified as PR Y, and existing degreasers, identified as PR 1, PR 2, and PR 3) located anywhere in the state of the types described in subdivision (1)(A) through (1)(C) of 326 IAC 8-2-1(b) and construction of which commenced after July 1, 1990, shall ensure that the following control equipment requirements are met:

(1) Equip the degreaser with a cover. The cover must be designed so that it can be easily operated with one (1) hand if:

(A) The solvent volatility is greater than two (2) kiloPascals (fifteen (15) millimeters of mercury or three-tenths (0.3) pounds per square inch) measured at thirty-eight degrees Celsius ($38^{O}C$) (one hundred degrees Fahrenheit ($100^{O}F$));

(B) The solvent is agitated; or

(C) The solvent is heated.

(2) Equip the degreaser with a facility for draining cleaned articles. If the solvent volatility is greater than four and three-tenths (4.3) kiloPascals (thirty-two (32) millimeters of mercury or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius ($38^{O}C$) (one hundred degrees Fahrenheit ($100^{O}F$)), then the drainage facility must be internal such that articles are enclosed under the cover while draining. The drainage facility may be external for applications where an internal type cannot fit into the cleaning system.

(3) Provide a permanent, conspicuous label which lists the operating requirements outlined in subsection (b).

(4) The solvent spray, if used, must be a solid, fluid stream and shall be applied at a pressure which does not cause excessive splashing.

(5) Equip the degreaser with one (1) of the following control devices if the solvent volatility is greater than four and three-tenths (4.3) kiloPascals (thirty-two (32) millimeters of mercury or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38^{O}C) (one hundred degrees Fahrenheit (100^{O}F)), or if the solvent is heated to a temperature greater than forty-eight and nine-tenths degrees Celsius (48.9^{O}C) (one hundred twenty degrees Fahrenheit (120^{O}F)):

(A) A freeboard that attains a freeboard ratio of seventy-five hundredths (0.75) or greater.

(B) A water cover when solvent is used is insoluble in, and heavier than, water.

(C) Other systems of demonstrated equivalent control such as a refrigerated chiller of carbon adsorption. Such systems shall be submitted to the U.S. EPA as a SIP revision.

(f) Pursuant to 326 IAC 8-3-5(b) (Cold Cleaner Degreaser Operation and Control), the owner or operator of the cold cleaner degreasers without remote solvent reservoirs (proposed degreaser, identified as PR Y, and existing degreasers, identified as PR 1, PR 2, and PR 3) located anywhere in the state of the types described in subdivision (1)(A) through (1)(C) of 326 IAC 8-2-1(b) construction of which commenced after July 1, 1990 , shall ensure that the following operating requirements are met:

(1) Close the cover whenever articles are not being handled in the degreaser.

(2) Drain cleaned articles for at least fifteen (15) seconds or until dripping ceases.

(3) Store waste solvent only in covered containers and prohibit the disposal or transfer of waste solvent in any manner in which greater than twenty percent (20%) of the waste solvent by weight could evaporate.

This registration is a revised registration, which includes new emission units issued to this source. The source may operate according to 326 IAC 2-5.5.

An authorized individual shall provide an annual notice to the Office of Air Quality that the source is in operation and in compliance with this registration pursuant to 326 IAC 2-5.5-4(a)(3)). The annual notice shall be submitted to:

Compliance Data Section
Office of Air Quality
100 North Senate Avenue
P.O. Box 6015
Indianapolis, IN 46206-6015

no later than March 1 of each year, with the annual notice being submitted in the format attached.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Original signed by Paul Dubenetzky
Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

APD

cc: File - County
Clinton County Health Department
Air Compliance - Dave Rice
Permit Tracking
Technical Support and Modeling - Michele Boner
Compliance Data Section - Karen Nowak

Registration
Annual Notification

This form should be used to comply with the notification requirements under 326 IAC 2-5.5-4(a)(3)

Company Name:	**TriMas Fasteners, Inc.**
Address:	**3281 West County Road O NS**
City:	**Frankfort**
Authorized individual:	**Don Gulas**
Phone #:	**(765) 654-0477**
Registration #:	**023-16752-00029**

I hereby certify that TriMas Fasteners, Inc. is still in operation and is in compliance with the requirements of Registration 023-16752-00029.

Name (typed):
Title:
Signature:
Date:

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Registration

Source Background and Description

Source Name:	TriMas Fasteners, Inc.
Source Location:	3281 West County Road O NS, Frankfort, Indiana 46401
County:	Clinton
SIC Code:	3452
Registration No.:	023-16752-00029
Permit Reviewer:	Aida De Guzman

The Office of Air Quality (OAQ) has reviewed an application from TriMas Fasteners, Inc. relating to the construction and operation of a steel screws and bolts manufacturing plant.

New Emission Units and Pollution Control Equipment

(a) One (1) new Zinc Chromate Line with a maximum capacity of 4,000 pounds of steel screws/bolts per hour, controlled by a Packed Bed Fume Scrubber:

(1) One (1) natural gas-fired boiler, identified as Boiler 2, with a maximum heat input capacity of 2.65 million British thermal units per hour (mmBtu/hr); and

(2) One (1) Embrittlement Oven with a total heat input of 4.0 mmBtu/hr; Zone 1 - Dry off operation at 1.2 mmBtu/hr, Zone 2 - Preheat operation at 1.2 mmBtu/hr, and Zone 3 - Soak operation at 1.6 mmBtu/hr.

(b) One (1) new Furnace Line Y with a maximum capacity of 1,500 pounds of steel screws/bolts per hour:

(1) One (1) natural gas-fired Hardening Furnace (Heat Treat), identified as PR Y with a maximum heat input capacity of 1.554 mmBtu/hr;

(2) One(1) natural gas-fired Endothermic Gas Generator, identified as EN Y with a maximum heat input capacity of 0.25 mmBtu/hr;

(3) One (1) natural gas-fired Pre-Washer and Dryer, identified as PR Y with a maximum heat input capacity of 0.5 mmBtu/hr;

(4) One (1) natural gas-fired Post- Washer and Tempering Furnace, identified as PR/TEMP Y with a maximum heat input capacity of 1.5 mmBtu/hr; and

(5) One (1) Quench Tank, identified as QT-Y containing mineral quench oils, controlled by a dedicated Electrostatic Precipitator with gas flow rate of 3,800 actual cubic feet per minute (acfm) and an outlet grain loading of 0.0015 grains per dry standard cubic foot (gr/dscf).

Permitted Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units and pollution control devices:

(a) One (1) Zinc Phosphate Line with a maximum capacity of 15,000 pounds of steel screw/bolts per hour, controlled by a Packed Bed Scrubber:

(1) One (1) natural gas-fired boiler, identified as Boiler 1 with a maximum heat input capacity of 2.65 mmBtu/hr. This boiler was installed in 1997.

(b) One (1) Furnace Line 1 with a maximum capacity of 4,000 pounds of steel screws/bolts per hour:

(1) One (1) natural gas-fired Hardening Furnace (Heat Treat), identified as HT 1 with a maximum heat input capacity of 3.75 mmBtu/hr;

(2) One(1) natural gas-fired Endothermic Gas Generator, identified as EN 1 with a maximum heat input capacity of 1.55 mmBtu/hr;

(3) One (1) natural gas-fired Pre-Washer and Dryer, identified as PR 1 with a maximum heat input capacity of 1.3 mmBtu/hr;

(4) One (1) natural gas-fired Tempering Furnace, identified as TF 1 with a maximum heat input capacity of 2.6 mmBtu/hr;

(5) One (1) natural gas-fired Post-Washer and Dryer, identified as PS 1 with a maximum heat input capacity of 0.8 mmBtu/hr; and

(6) One (1) Quench Tank, identified as QT-1 containing mineral quench oils, controlled by a dedicated Electrostatic Precipitator with gas flow rate of 3,800 actual cubic feet per minute (acfm) and an outlet grain loading of 0.0015 grains per dry standard cubic foot (gr/dscf).

(c) One (1) Furnace Line 2 with a maximum capacity of 4,000 pounds of steel screws/bolts per hour:

(1) One (1) natural gas-fired Hardening Furnace (Heat Treat), identified as HT 2 with a maximum heat input capacity of 3.75 mmBtu/hr;

(2) One(1) natural gas-fired Endothermic Gas Generator, identified as EN 2 with a maximum heat input capacity of 1.55 mmBtu/hr;

(3) One (1) natural gas-fired Pre-Washer and Dryer, identified as PR 2 with a maximum heat input capacity of 1.3 mmBtu/hr;

(4) One (1) natural gas-fired Tempering Furnace, identified as TF 2 with a maximum heat input capacity of 2.6 mmBtu/hr;

(5) One (1) natural gas-fired Post-Washer and Dryer, identified as PS 2 with a maximum heat input capacity of 0.8 mmBtu/hr; and

(6) One (1) Quench Tank, identified as QT-2 containing mineral quench oils, controlled by a dedicated Electrostatic Precipitator with gas flow rate of 3,800 actual cubic feet per minute (acfm) and an outlet grain loading of 0.0015 grains per dry standard cubic foot (gr/dscf).

(d) One (1) Furnace Line 3 with a maximum capacity of 4,000 pounds of steel screws/bolts per hour:

(1) One (1) natural gas-fired Hardening Furnace (Heat Treat), identified as PR3 with a maximum heat input capacity of 6.8 mmBtu/hr;

(2) One(1) natural gas-fired Endothermic Gas Generator, identified as EN 3 with a maximum heat input capacity of 0.6 mmBtu/hr;

(3) One (1) natural gas-fired Pre-Washer and Dryer, identified as PR 3 with a maximum heat input capacity of 0.75 mmBtu/hr;

(4) One (1) natural gas-fired Post-Washer and Tempering Furnace, identified as PR/TEMP 3 with a maximum heat input capacity of 3.4 mmBtu/hr; and

(5) One (1) Quench Tank, identified as QT-3 containing mineral quench oils, controlled by a dedicated Electrostatic Precipitator with gas flow rate of 3,800 actual cubic feet per minute (acfm) and an outlet grain loading of 0.0015 grains per dry standard cubic foot (gr/dscf).

Existing Approvals

The source has been operating under Registration No. 023-10369-00029, issued on January 12, 1999.

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on January 21, 2003, with additional information received on April 30, 2003; May 5, 2003; May 22, 2003; June 11, 2003; and June 19, 2003.

Emission Calculations

See pages 1 through 15 of 15 TSD Appendix A of this document for detailed emissions calculations

Potential To Emit

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency.”

Pollutant	Potential To Emit (tons/year)
PM	17.53
PM-10	18.58
SO_2	0.10
VOC	0.99
CO	15.27
NO_x	18.2

HAP's	Potential To Emit (tons/year)
Hexane	0.33
Total	0.33

(a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of particulate matter (PM) or PM10 are each greater than 5 tons per year but less than 25 tons per year; or oxides of nitrogen (NOx) is greater than 10 tons per year but less than 25 tons per year. Therefore, the source will be re-Registered.

Source Status

Existing re-Registered Source (emissions after controls, based on 8,760 hours of operation per year at rated capacity):

	Limited Potential to Emit (tons/year)						
Process/facility	PM	PM-10	SO_2	VOC	CO	NO_X	HAPs
New Zinc Chromate Line	0.13	0.3	0.02	0.16	2.44	2.91	0.05
New Furnace Line Y	0.23	0.34	0.00	0.10	1.39	1.67	0.02
Existing Phosphate Line with boiler 1	0.02	0.09	0.01	0.06	0.97	1.16	0.02
Existing Furnace Line 1	0.28	0.49	0.02	0.20	3.11	3.70	0.07
Existing Furnace Line 2	0.28	0.49	0.02	0.20	3.11	3.70	0.07
Existing Furnace Line 3	0.31	0.59	0.03	0.27	4.25	5.06	0.10
Total Emissions	1.25	2.30	0.10	0.99	15.27	18.20	0.33

County Attainment Status

The source is located in Clinton County.

Pollutant	Status
PM-10	attainment
SO_2	attainment
NO_2	attainment
Ozone	attainment

CO	attainment
Lead	not determined

(a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Clinton County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(b) Clinton County has been classified as attainment or unclassifiable for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)
This existing source, including the new equipment will not change the Registered status of the source.

Federal Rule Applicability

(a) New Source Performance Standards (NSPS):

(1) 326 IAC 12 and 40 CFR Part 60.40c, Subpart Dc - Standards of Performance for Small Industrial- Commercial-Institutional Steam Generating Units - This standard applies to each steam generating units for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 100 million Btu/hr or less, but greater than or equal to 10 mmBtu/hr.

The two (2) boilers, identified as Boilers 1 and 2 are not subject to this rule, as each boiler is less than 10 mmBtu/hr.

(2) There are no other New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this source.

(b) National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63)

(1) 40 CFR Part 63.460, Subpart T - National Standards for Halogenated Solvent Cleaning. This NSPS does not apply to the Pre-Washers, as they do not use any or combination of the halogenated solvents listed in the rule.

The Post Washers are not subject to this NSPS, as they use only hot water for washing.

(2) There are no other National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this source.

State Rule Applicability - Entire Source

(a) 326 IAC 2-6 (Emission Reporting)
Although this source has the potential to emit of more than ten (10) tons per year of oxides of nitrogen (NOx), it is not subject to 326 IAC 2-6 (Emission Reporting), because it is located in Clinton, which is not one of the counties listed in the rule.

(b) 326 IAC 5-1 (Visible Emissions Limitations)
Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

(1) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability - Individual Facilities

(a) 326 IAC 8-3 (Organic Solvent Degreasing Operation)
The proposed degreaser, identified as PR Y, and existing degreasers, identified as PR 1, PR 2, and PR 3, use a solution containing 99% water and 1% of Renoclean with Diethylene Glycol content of <5%. All these degreasers will be subject to 326 IAC 8-3 (Organic Solvent Degreasing Operations) for units constructed after 1990. These pre-washers are cold cleaner degreasers, since the solvent used is heated at a temperature below the solvent boiling point temperature, and they have no remote solvent reservoirs. Therefore these degreasers are subject to the following:

(1) Pursuant to 326 IAC 8-3-2 (Cold Cleaner Operations), for cold cleaning operations constructed after January 1, 1980, the owner or operator shall:

(A) Equip the cleaner with a cover;

(B) Equip the cleaner with a facility for draining cleaned parts;

(C) Close the degreaser cover whenever parts are not being handled in the cleaner;

(D) Drain cleaned parts for at least fifteen (15) seconds or until dripping ceases;

(E) Provide a permanent, conspicuous label summarizing the operation requirements;

(F) Store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, in such a manner that greater than twenty percent (20%) of the waste solvent (by weight) can evaporate into the atmosphere.

(2) Pursuant to 326 IAC 8-3-5(a) (Cold Cleaner Degreaser Operation and Control), the owner or operator of the cold cleaner degreasers without remote solvent reservoirs (proposed degreaser, identified as PR Y, and existing degreasers, identified as PR 1, PR 2, and PR 3) located anywhere in the state of the types described in subdivision (1)(A) through (1)(C) of 326 IAC 8-2-1(b) and construction of which commenced after July 1, 1990, shall ensure that the following control equipment requirements are met:

(A) Equip the degreaser with a cover. The cover must be designed so that it can be easily operated with one (1) hand if:

(i) The solvent volatility is greater than two (2) kiloPascals (fifteen (15) millimeters of mercury or three-tenths (0.3) pounds per square inch) measured at thirty-eight degrees Celsius (38^{O}C) (one hundred degrees Fahrenheit (100^{O}F));

(ii) The solvent is agitated; or

(iii) The solvent is heated.

(B) Equip the degreaser with a facility for draining cleaned articles. If the solvent volatility is greater than four and three-tenths (4.3) kiloPascals (thirty-two (32) millimeters of mercury or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38^{O}C) (one hundred degrees Fahrenheit (100^{O}F)), then the drainage facility must be internal such that articles are enclosed under the cover while draining. The drainage facility may be external for applications where an internal type cannot fit into the cleaning system.

(C) Provide a permanent, conspicuous label which lists the operating requirements outlined in subsection (b).

(D) The solvent spray, if used, must be a solid, fluid stream and shall be applied at a pressure which does not cause excessive splashing.

(E) Equip the degreaser with one (1) of the following control devices if the solvent volatility is greater than four and three-tenths (4.3) kiloPascals (thirty-two (32) millimeters of mercury or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38^{O}C) (one hundred degrees Fahrenheit (100^{O}F)), or if the solvent is heated to a temperature greater than forty-eight and nine-tenths degrees Celsius (48.9^{O}C) (one hundred twenty degrees Fahrenheit (120^{O}F)):

(i) A freeboard that attains a freeboard ratio of seventy-five hundredths (0.75) or greater.

(ii) A water cover when solvent is used is insoluble in, and heavier than, water.

(iii) Other systems of demonstrated equivalent control such as a refrigerated chiller of carbon adsorption. Such systems shall be submitted to the U.S. EPA as a SIP revision.

(3) Pursuant to 326 IAC 8-3-5(b) (Cold Cleaner Degreaser Operation and Control), the owner or operator of the cold cleaner degreasers without remote solvent reservoirs (proposed degreaser, identified as PR Y, and existing degreasers, identified as PR 1, PR 2, and PR 3) located anywhere in the state of the types described in subdivision (1)(A) through (1)(C) of 326 IAC 8-2-1(b) construction of which commenced after July 1, 1990 , shall ensure that the following operating requirements are met:

(A) Close the cover whenever articles are not being handled in the

degreaser.

(B) Drain cleaned articles for at least fifteen (15) seconds or until dripping ceases.

(C) Store waste solvent only in covered containers and prohibit the disposal or transfer of waste solvent in any manner in which greater than twenty percent (20%) of the waste solvent by weight could evaporate.

(b) The proposed post washer, identified as PR/TEMP Y, and existing post washers, identified as PS 1, PS 2 and PR/TEMP 3 use 100% hot water, therefore, they are not subject to 326 IAC 8-3 since they do not use organic solvent.

(c) 326 IAC 6-2 (Indirect Heating)
326 IAC 6-2-4 applies to indirect heating units constructed after September 21, 1983, and shall limit the PM emissions using the following equation:

$$Pt = 1.09/Q^{0.26}$$

Where: Pt = pounds of PM emitted per million Btu (lb/mmBtu)
Q = Total source maximum operating capacity rating in mmBtu/hr

(1) Existing 2.65 mmBtu/hr Boiler 1, installed in 1997:

$$Pt = 1.09/Q^{0.26}$$
$$= 1.09/2.65^{0.26}$$
= 0.846 lb/mmBtu > 0.60 lb/mmBtu. Therefore, this boiler will be limited to 0.60 lb/mmBtu

This boiler is in compliance with the 0.60 lb/mmBtu limit since its PM emission is below the limit (see below calculations):

0.02 ton PM/yr * 2000lb/ton * yr/23.2 MMCF * 1 MMCF/1000 mmBtu = 0.002 lb/mmBtu < 0.60 lb/mmBtu

(2) Proposed 2.65 mmBtu/hr Boiler 2:

$$Pt = 1.09/Q^{0.26}$$
$$= 1.09/5.3^{0.26}$$
= 0.71 lb/mmBtu > 0.60 lb/mmBtu. Therefore, this boiler will be limited to 0.60 lb/mmBtu

This boiler is in compliance with the 0.60 lb/mmBtu limit since its PM emission is below the limit (see below calculations):

0.02 ton PM/yr * 2000lb/ton * yr/23.2 MMCF * 1 MMCF/1000 mmBtu = 0.002 lb/mmBtu < 0.60 lb/mmBtu

(d) 326 IAC 6-3-2 (Process Operations)

(1) The Zinc Phosphating process and Zinc Chromating process are exempted from the requirements of 326 IAC 6-3-2, since their PM potential emissions are less than five hundred fifty one-thousandths (0.551) pounds per hour. See page 15 of 15 TSD Appendix A for detailed calculations.

(2) Steel Hardening/Heat Treat and Tempering processes are not subject to 326 IAC 6-3-2, as these processes do not emit particulate.

(3) The proposed oil quenching process, identified Quench Tank QT-Y and existing oil quenching processes, identified as Quench Tanks QT-1, QT-2, and QT-3 are subject to 326 IAC 6-3-2 and each Particulate emissions will be limited using the following equation:

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10 P^{0.67}$ where: E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

Facility	Process Weight Rate (tons/hour)	Particulate Emissions Limit (pounds/hour)
Quench Oil Process Tank, QT-Y	0.75	3.38
Quench Oil Process Tank, QT-1	2.0	6.5
Quench Oil Process Tank, QT-2	2.0	6.5
Quench Oil Process Tank, QT-3	2.0	6.5

Each quench oil process tank is in compliance with this rule, as each PTE for Particulate is less than what is allowed by 326 IAC 6-3-2.

Conclusion

The operation of this steel screws and bolts manufacturing plant shall be subject to the conditions of the attached **Registration 023-16752-00029.**

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler

Company Name: TriMas Fasteners, Inc.
Address City IN Zip: 3281 West County Rd O NS, Frankfort, IN 46401
Registration: 023-16752
Plt ID: 023-00029
Reviewer: Aida De Guzman
Date Application Received: Jan. 31, 2003

NEW ZINC CHROMATE LINE:
Boiler @ 2.65 mmBtu/hr
Embrittlement Oven @ 4 mmBtu/hr

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
2.7	23.2
4	35.0

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr for (2.7 mmBtu/hr)	0.02	0.09	0.01	1.16	0.06	0.97
Potential Emission in tons/yr for (4 mmBtu/hr)	0.03	0.13	0.01	1.75	0.10	1.47

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 7/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler
HAPs Emissions

Company Name: TriMas Fasteners, Inc.
Address City IN Zip: 3281 West County Rd O NS, Frankfort, IN 46401
Registration: 023-16752
Plt ID: 023-00029
Reviewer: Aida De Guzman
Date Application Received: Jan. 31, 2003

NEW ZINC CHROMATE LINE:
Boiler @ 2.65 mmBtu/hr
Embrittlement Oven @ 4 mmBtu/hr

HAPs - Organics

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr for (2.7 mmBtu/hr)	0.000	0.000	0.001	0.021	0.000
Potential Emission in tons/yr for (4 mmBtu/hr)	0.000	0.000	0.001	0.032	0.000

HAPs - Metals

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr for (2.7 mmBtu/hr)	0.000	0.000	0.000	0.000	0.000
Potential Emission in tons/yr for (4 mmBtu/hr)	0.000	0.000	0.000	0.000	0.000

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler

Company Name: TriMas Fasteners, Inc.
Address City IN Zip: 3281 West County Rd O NS, Frankfort, IN 46401
Registration: 023-16752
Plt ID: 023-00029
Reviewer: Aida De Guzman
Date Application Received: Jan. 31, 2003

EXISTING PHOSPHATE LINE:
Boiler @ 2.65 mmBtu/hr

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
2.7	23.2

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr for (2.7 mmBtu/hr)	0.02	0.09	0.01	1.16	0.06	0.97

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 7/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).
See page 2 for HAPs emissions calculations.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler
HAPs Emissions

Company Name: TriMas Fasteners, Inc.
Address City IN Zip: 3281 West County Rd O NS, Frankfort, IN 46401
Registration: 023-16752
Plt ID: 023-00029
Reviewer: Aida De Guzman
Date Application Received: Jan. 31, 2003

EXISTING PHOSPHATE LINE:
Boiler @ 2.65 mmBtu/hr

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	2.437E-05	1.393E-05	8.705E-04	2.089E-02	3.946E-05

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	5.804E-06	1.277E-05	1.625E-05	4.411E-06	2.437E-05

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler

Company Name: TriMas Fasteners, Inc.
Address City IN Zip: 3281 West County Rd O NS, Frankfort, IN 46401
Registration: 023-16752
Plt ID: 023-00029
Reviewer: Aida De Guzman
Date Application Received: Jan. 31, 2003

NEW FURNACE LINE Y:
Hardening Furnace (Heat Treat) PR Y @ 1.554 mmBtu/hr
Postwasher & Tempering Furnace, PR/TEMP Y @ 1.5 mmBtu/hr
Prewasher & Dryer PR Y @ 0.50 mmBtu/hr
Endothermic Gas Generator, EN Y @ 0.25 mmBtu/hr

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
1.6	13.6
1.5	13.1
0.5	4.4
0.25	2.2

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr for (1.6 mmBtu/hr)	0.01	0.05	0.00	0.68	0.04	0.57
Potential Emissions in tons/yr for (1.5 mmBtu/hr)	0.01	0.05	0.00	0.66	0.04	0.55
Potential Emissions in tons/yr for (0.5 mmBtu/hr)	0.00	0.02	0.00	0.22	0.01	0.18
Potential Emissions in tons/yr for (0.25 mmBtu/hr	0.00	0.01	0.00	0.11	0.01	0.09

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology
All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 7/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler
HAPs Emissions

Company Name: TriMas Fasteners, Inc.
Address City IN Zip: 3281 West County Rd O NS, Frankfort, IN 46401
Registration: 023-16752
Plt ID: 023-00029
Reviewer: Aida De Guzman
Date Application Received: Jan. 31, 2003

NEW FURNACE LINE Y:
Hardening Furnace (Heat Treat) PR Y @ 1.554 mmBtu/hr
Postwasher & Tempering Furnace, PR/TEMP Y @ 1.5 mmBtu/hr
Prewasher & Dryer PR Y @ 0.50 mmBtu/hr
Endothermic Gas Generator, EN Y @ 0.25 mmBtu/hr

HAPs - Organics

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr for (1.554 mmBtu/hr	0.000	0.000	0.001	0.012	0.000
Potential Emissions in tons/yr for (1.5 mmBtu/hr)	0.000	0.000	0.000	0.012	0.000
Potential Emissions in tons/yr for (0.5 mmBtu/hr)	0.000	0.000	0.000	0.004	0.000
Potential Emissions in tons/yr for (0.25 mmBtu/hr	0.000	0.000	0.000	0.002	0.000

HAPs - Metals

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr for (1.554 mmBtu/hr	0.000	0.000	0.000	0.000	0.000
Potential Emissions in tons/yr for (1.5 mmBtu/hr)	0.000	0.000	0.000	0.000	0.000
Potential Emissions in tons/yr for (0.5 mmBtu/hr)	0.000	0.000	0.000	0.000	0.000
Potential Emissions in tons/yr for (0.25 mmBtu/hr	0.000	0.000	0.000	0.000	0.000

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler

Company Name: TriMas Fasteners, Inc.
Address City IN Zip: 3281 West County Rd O NS, Frankfort, IN 46401
Registration: 023-16752
Plt ID: 023-00029
Reviewer: Aida De Guzman
Date Application Received: Jan. 31, 2003

EXISTING FURNACE LINE 1:
Prewasher & Dryer, PR1 @ 1.3 mmBtu/hr
Hardening Furnace (Heat Treat) @HT1 @3.75 mmBtu/hr
Tempering Furnace, TF1 @ 2.6 mmBtu/hr
Postwasher , PS1 @ 0.80 mmBtu/hr

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
1.3	11.4
3.75	32.9
2.6	22.8
0.8	7.0

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr for (1.3 mmBtu/hr)	0.01	0.04	0.00	0.57	0.03	0.48
Potential Emissions in tons/yr for (3.75 mmBtu/h	0.03	0.12	0.01	1.64	0.09	1.38
Potential Emissions in tons/yr for (2.6 mmBtu/hr	0.02	0.09	0.01	1.14	0.06	0.96
Potential Emissions in tons/yr for (0.8 mmBtu/hr	0.01	0.03	0.00	0.35	0.02	0.29

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology
All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 7/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler
HAPs Emissions

Company Name: TriMas Fasteners, Inc.
Address City IN Zip: 3281 West County Rd O NS, Frankfort, IN 46401
Registration: 023-16752
Plt ID: 023-00029
Reviewer: Aida De Guzman
Date Application Received: Jan. 31, 2003

EXISTING FURNACE LINE 1:
Prewasher & Dryer, PR1 @ 1.3 mmBtu/hr
Hardening Furnace (Heat Treat) @HT1 @3.75 mmBtu/hr
Tempering Furnace, TF1 @ 2.6 mmBtu/hr
Postwasher , PS1 @ 0.80 mmBtu/hr

HAPs - Organics

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr for (1.3 mmBtu/hr)	0.000	0.000	0.000	0.010	0.000
Potential Emissions in tons/yr for (3.75 mmBtu/h	0.000	0.000	0.001	0.030	0.000
Potential Emissions in tons/yr for (2.6 mmBtu/hr	0.000	0.000	0.001	0.020	0.000
Potential Emissions in tons/yr for (0.8 mmBtu/hr	0.000	0.000	0.000	0.006	0.000

HAPs - Metals

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr for (1.3 mmBtu/hr)	0.000	0.000	0.000	0.000	0.000
Potential Emissions in tons/yr for (3.75 mmBtu/h	0.000	0.000	0.000	0.000	0.000
Potential Emissions in tons/yr for (2.6 mmBtu/hr	0.000	0.000	0.000	0.000	0.000
Potential Emissions in tons/yr for (0.8 mmBtu/hr	0.000	0.000	0.000	0.000	0.000

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler

Company Name: TriMas Fasteners, Inc.
Address City IN Zip: 3281 West County Rd O NS, Frankfort, IN 46401
Registration: 023-16752
Plt ID: 023-00029
Reviewer: Aida De Guzman
Date Application Received: Jan. 31, 2003

EXISTING FURNACE LINE 2:
Prewasher & Dryer, PR2 @ 1.3 mmBtu/hr
Hardening Furnace (Heat Treat) @HT2 @3.75 mmBtu/hr
Tempering Furnace, TF2 @ 2.6 mmBtu/hr
Postwasher , PS2 @ 0.80 mmBtu/hr

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
1.3	11.4
3.75	32.9
2.6	22.8
0.8	7.0

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr for (1.3 mmBtu/hr)	0.01	0.04	0.00	0.57	0.03	0.48
Potential Emissions in tons/yr for (3.75 mmBtu/h	0.03	0.12	0.01	1.64	0.09	1.38
Potential Emissions in tons/yr for (2.6 mmBtu/hr	0.02	0.09	0.01	1.14	0.06	0.96
Potential Emissions in tons/yr for (0.8 mmBtu/hr	0.01	0.03	0.00	0.35	0.02	0.29

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology
All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 7/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler
HAPs Emissions

Company Name: TriMas Fasteners, Inc.
Address City IN Zip: 3281 West County Rd O NS, Frankfort, IN 46401
Registration: 023-16752
Plt ID: 023-00029
Reviewer: Aida De Guzman
Date Application Received: Jan. 31, 2003

EXISTING FURNACE LINE 2:
Prewasher & Dryer, PR2 @ 1.3 mmBtu/hr
Hardening Furnace (Heat Treat) @HT2 @3.75 mmBtu/hr
Tempering Furnace, TF2 @ 2.6 mmBtu/hr
Postwasher , PS2 @ 0.80 mmBtu/hr

HAPs - Organics

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr for (1.3 mmBtu/hr)	0.000	0.000	0.000	0.010	0.000
Potential Emissions in tons/yr for (3.75 mmBtu/h	0.000	0.000	0.001	0.030	0.000
Potential Emissions in tons/yr for (2.6 mmBtu/hr	0.000	0.000	0.001	0.020	0.000
Potential Emissions in tons/yr for (0.8 mmBtu/hr	0.000	0.000	0.000	0.006	0.000

HAPs - Metals

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr for (1.3 mmBtu/hr)	0.000	0.000	0.000	0.000	0.000
Potential Emissions in tons/yr for (3.75 mmBtu/h	0.000	0.000	0.000	0.000	0.000
Potential Emissions in tons/yr for (2.6 mmBtu/hr	0.000	0.000	0.000	0.000	0.000
Potential Emissions in tons/yr for (0.8 mmBtu/hr	0.000	0.000	0.000	0.000	0.000

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler

Company Name: TriMas Fasteners, Inc.
Address City IN Zip: 3281 West County Rd O NS, Frankfort, IN 46401
Registration: 023-16752
Plt ID: 023-00029
Reviewer: Aida De Guzman
Date Application Received: Jan. 31, 2003

EXISTING FURNACE LINE 3:
Prewasher & Dryer, PR3 @ 0.75 mmBtu/hr
Hardening Furnace (Heat Treat), PR3 @ 6.8 mmBtu/hr
Post Washer and Tempering Furnace, PR/TEMP3 @ 3.4 mmBtu/hr
Endothermic Gas Generator, EN3 @ 0.6 mmBtu/hr

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
0.8	6.6
6.8	59.6
3.4	29.8
0.6	5.3

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr for (0.75 mmBtu/hr	0.01	0.02	0.00	0.33	0.02	0.28
Potential Emissions in tons/yr for (6.8 mmBtu/hr	0.06	0.23	0.02	2.98	0.16	2.50
Potential Emissions in tons/yr for (3.4 mmBtu/hr	0.03	0.11	0.01	1.49	0.08	1.25
Potential Emissions in tons/yr for (0.6 mmBtu/hr	0.00	0.02	0.00	0.26	0.01	0.22

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology
All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 7/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Appendix A: Emissions Calculations
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Small Industrial Boiler
HAPs Emissions

Company Name: TriMas Fasteners, Inc.
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HAPs - Organics

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr for (0.75 mmBtu/hr	0.000	0.000	0.000	0.006	0.000
Potential Emissions in tons/yr for (6.8 mmBtu/hr	0.000	0.000	0.002	0.054	0.000
Potential Emissions in tons/yr for (3.4 mmBtu/hr	0.000	0.000	0.001	0.027	0.000
Potential Emissions in tons/yr for (0.6 mmBtu/hr	0.000	0.000	0.000	0.005	0.000

HAPs - Metals

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr for (1.3 mmBtu/hr)	0.000	0.000	0.000	0.000	0.000
Potential Emissions in tons/yr for (3.75 mmBtu/h	0.000	0.000	0.000	0.000	0.000
Potential Emissions in tons/yr for (2.6 mmBtu/hr	0.000	0.000	0.000	0.000	0.000
Potential Emissions in tons/yr for (0.8 mmBtu/hr	0.000	0.000	0.000	0.000	0.000

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler

Company Name: TriMas Fasteners, Inc.
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Facility/ID	Gas/Air FlowRate (acfm)	Grain Loading/actual std. cubic foot of outlet air	Actual Collection Efficiency %	PM/PM10 Uncontrolled PTE (tons/year)	PM/PM10 Controlled PTE (tons/year)
Quench Oil Process Tank, QT- 1	3,800	0.0015	95.00%	4.28	0.21
Quench Oil Process Tank, QT- 2	3800	0.0015	95.00%	4.28	0.21
Quench Oil Process Tank, QT- 3	3,800	0.0015	95.00%	4.28	0.21
Quench Oil Process Tank, QT- Y	3,800	0.0015	95.00%	4.28	0.21
TOTAL				17.12	0.86

Appendix A: Emissions Calculations

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Registration: 023-16752
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Reviewer: Aida De Guzman
Date Application Received: Jan. 31, 2003

	SUMMARY OF EMISSIONS (TONS/YEAR)								
Facility/ID	PM Uncontrolled	PM Controlled	PM10 Uncontrolled	PM10 Controlled	SO2	NOx	VOC	CO	Hexane
New Zinc Chromate Line									
Zinc Chromating process	0.08	0.08	0.08	0.08	0.00	0.00	0.00	0.00	0.00
Boiler	0.02	0.02	0.09	0.09	0.01	1.16	0.06	0.97	0.02
Embrittlement oven	0.03	0.03	0.13	0.13	0.01	1.75	0.10	1.47	0.03
New Furnace Line Y									
Hardening Furnace (Heat Treat)	0.01	0.01	0.05	0.05	0.00	0.68	0.04	0.57	0.01
Post washer & Tempering F.	0.01	0.01	0.05	0.05	0.00	0.66	0.04	0.55	0.01
Prewasher & Dryer	0.00	0.00	0.02	0.02	0.00	0.22	0.01	0.18	0.00
Endothermic gas generator	0.00	0.00	0.01	0.01	0.00	0.11	0.01	0.09	0.00
Quench Oil Process Tank, QT- Y	4.28	0.21	4.28	0.21	0.00	0.00	0.00	0.00	0.00
Existing Phosphate Line									
Zinc Phosphating process	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Boiler	0.02	0.02	0.09	0.09	0.01	1.16	0.06	0.97	0.02
Existing Furnace Line 1									
Prewasher & Dryer	0.01	0.01	0.04	0.04	0.00	0.57	0.03	0.48	0.01
Hardening Furnace (Heat Treat)	0.03	0.03	0.12	0.12	0.01	1.64	0.09	1.38	0.03
Tempering Furnace	0.02	0.02	0.09	0.09	0.01	1.14	0.06	0.96	0.02
Postwasher	0.01	0.01	0.03	0.03	0.00	0.35	0.02	0.29	0.01
Quench Oil Process Tank, QT- 1	4.28	0.21	4.28	0.21	0.00	0.00	0.00	0.00	0.00
Existing Furnace Line 2									
Prewasher & Dryer	0.01	0.01	0.04	0.04	0.00	0.57	0.03	0.48	0.01
Hardening Furnace (Heat Treat)	0.03	0.03	0.12	0.12	0.01	1.64	0.09	1.38	0.03
Tempering Furnace	0.02	0.02	0.09	0.09	0.01	1.14	0.06	0.96	0.02
Postwasher	0.01	0.01	0.03	0.03	0.00	0.35	0.02	0.29	0.01
Quench Oil Process Tank, QT- 2	4.28	0.21	4.28	0.21	0.00	0.00	0.00	0.00	0.00
Existing Furnace Line 3									
Prewasher & Dryer	0.01	0.01	0.02	0.02	0.00	0.33	0.02	0.28	0.01
Hardening Furnace (Heat Treat)	0.06	0.06	0.23	0.23	0.02	2.98	0.16	2.50	0.05
Post washer & Tempering F.	0.03	0.03	0.11	0.11	0.01	1.49	0.08	1.25	0.03
Endothermic gas generator	0.00	0.00	0.02	0.02	0.00	0.26	0.01	0.22	0.01
Quench Oil Process Tank, QT- 3	4.28	0.21	4.28	0.21	0.00	0.00	0.00	0.00	0.00
TOTAL	17.53	1.25	18.58	2.30	0.10	18.20	0.99	15.27	0.33

Zinc chromating process is controlled by a packed bed scrubber
Each quench oil process tank is controlled by a dedicated electrostatic precipitator

New Zinc Chromate and Existing Zinc Phosphate Line

Using AP-42 Section 12.20
Equation 1 - Emissions from plating operations other than chromium electroplating

$Efm = (3.3 \times 10^{-7})(EEm/em)(Cm)(Dm)$

Efm = emission factor for metal "m", grains/dscf
EEm = electrochemical equivalent for metal "m", A-hr/mil-ft2
em = cathode efficiency for metal "m", percent
Cm = bath concentration for metal "m", oz/gal
Dm = current density for metal "m", A/ft2

EEm = 0.3322 A-hr/mil/ft2 for Zinc
em = 95 Range of 90 - 98%, 95% normal
Cm = 4 oz/gal in Tank 16
Dm = 5 A/ft2

Efm = 2.308E-08 grains/dscf

Q = 21,800 cfm

Particulate emissions Acid Zinc tank = 4.313E-06 lb/hr

Equation 4 - Electroless Plating

$E2 = 1.9 \times sigma / Rb [(1 - 2a + 9a^2)^{0.5} + (a-1) / (1 + 3a) - (1 - 2a + 9a^2)^{0.5}]^{0.5}$

E2 = emission factor in grains per cubic foot of aeration air
Rb = average bubble radius, in
sigma = surface tension of bath in lbf/ft
a = $0.072 \times Rb^2/sigma$

Tanks with Aeration	Rb	Sigma	a	E2	Aeration air, cfm	PM/PM10 Emissions, lb/hr
Clear Chromate	0.05	0.0047	0.0386	0.0362	19	0.0059
Yellow Chromate	0.05	0.0043	0.0419	0.0349	19	0.0057
Olive Drab Chromate	0.05	0.0045	0.0404	0.0354	19	0.0058

New Zinc Chromate line Emissions

Tank	Uncontrolled PM/PM10 Emissions, lb/hr	Control Efficiency, %	Controlled PM/PM10 Emissions, lb/hr	Uncontrolled PM/PM10 Emissions, tons/yr	Controlled PM/PM10 Emissions, tons/yr
Acid Zinc	4.31E-06	95	2.16E-07	1.89E-05	9.44E-07
Clear Chromate	0.006	0	0.006	2.58E-02	2.58E-02
Yellow Chromate	0.006	0	0.006	2.49E-02	2.49E-02
Olive Drab	0.006	0	0.006	2.53E-02	2.53E-02
Total	0.017		0.017	7.59E-02	7.59E-02

Extg. Zinc Phosphate Line Emissions

No electroplating operations - Equation 1 not applicable
No agitation air, result of Equation 4 is zero.